

REMARKS

Applicant has carefully studied the Office Action of March 11, 2005, and offers the following remarks to accompany the above amendments.

Before addressing the rejections based on the references, Applicant provides a brief summary of the present invention so that the remarks relating to the references are considered in the proper context. The present invention is a diagnostic tool that helps mechanics isolate which cylinder in a multicylinder engine has a combustion inefficiency. The present invention does so by detecting a peak in an oxygen level within the exhaust path of the engine. The peak in the oxygen level corresponds to the particular cylinder which has the combustion inefficiency. In most cases, this combustion inefficiency will be a partial or complete lack of combustion within the cylinder. The present invention links the peak in the oxygen level to the combustion event (or lack thereof) in a particular cylinder. In one embodiment, the mechanic's test equipment tells the mechanic which cylinder has the combustion inefficiency. In another embodiment, the vehicle's computer stores the information about which cylinder has the combustion inefficiency and makes this information available to a mechanic during a service call.

Applicant has amended claims the independent claims to recite some variation of "reporting the peak in the sensed oxygen level to an operator in a human readable format." Support for this can be found in paragraphs 0042 (the car computer embodiment), 0056, and Figure 10 of the specification. No new matter is added.

Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by Turin et al. (hereinafter "Turin"). Applicant respectfully traverses. For the Patent Office to establish anticipation, the Patent Office must show where each and every element of the claim is shown in the reference. Further, the elements of the reference must be arranged as claimed. MPEP § 2131.

As amended, claim 1 recites "reporting the peak in the sensed oxygen level to an operator in a human readable format". Turin does not show this element. Turin is a system that measures oxygen in the exhaust path to adjust the air to fuel ratio of the engine (see abstract). In conventional systems, the oxygen level of the exhaust path is monitored and a feedback signal developed that is used to control the amount of fuel that is injected into the engine so as to achieve a desired air to fuel ratio. In general, this feedback is not linked to a particular cylinder, but rather is a time-averaged feedback signal and control of the fuel injection. Turin discloses at

col. 1, lines 28-42 that the oxygen sensor may be used to develop feedback signals unique to each cylinder so that the air to fuel ratio of an individual cylinder may be controlled. However, this feedback signal is not made available to an operator in a human readable format. Rather, Turin's oxygen sensor 64 provides a signal to the engine controller 52 which then adjusts, via fuel control module 50, the fuel injected into the individual cylinders. Applicant has studied the reference and finds no indication that Turin teaches or suggests reporting the peak in the sensed oxygen level to an operator in a human readable format as recited in the claim. To this extent, claim 1 is not anticipated. Applicant requests withdrawal of the § 102 rejection of claim 1 at this time.

Claims 2-4, 7-17, and 21-26 were rejected under 35 U.S.C. § 103 as being unpatentable over Turin in view of Weber et al. (hereinafter "Weber"). Applicant respectfully traverses. For the Patent Office to combine references in an obviousness determination, it must do two things. First, the Patent Office must articulate a motivation to combine the references, and second, the Patent Office must provide actual evidence in support of the motivation. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). While the range of sources is broad, the breadth of available sources does not diminish the requirement for actual evidence. *Id.* Furthermore, even if the combination is proper, to establish *prima facie* obviousness, the combination must still teach or suggest all the claim elements. MPEP § 2143.03.

Applicant initially traverses the motivation to combine the references as improperly supported. Specifically, the Patent Office opines that the motivation to combine the references is "to respond to differing levels of oxygen generated during combustion." This articulated motivation lacks the requisite actual evidence. Since the motivation lacks the required evidence, the motivation is improper. Since the motivation is improper, the combination is improper. Since the combination is improper, the rejection is not properly supported, and claims 2-4, 7-17, and 21-26 are allowable.

Even if the combination is proper, a point which Applicant does not concede, the combination does not teach or suggest all the claim elements. As noted above, Turin does not teach reporting the peak in the sensed oxygen level to an operator in a human readable format as recited in the claims. Weber does not cure the deficiency of Turin. Weber, like Turin, is designed to modify the air to fuel ratio of the engine, and is not designed to report the peak in the sensed oxygen level to an operator in a human readable format as recited in the claims. Since the

references in combination do not teach or suggest the claimed invention, the combination does not establish obviousness. Since the combination does not establish obviousness, the claims are allowable for this reason as well.

Claims 5, 6, and 18-20 were rejected under 35 U.S.C. § 103 as being unpatentable over Turin in view of Weber, and further in view of Wataya. Applicant respectfully traverses. The standard for establishing obviousness is set forth above.

Initially, Applicant traverses the combination of Turin and Weber as improper for the reason set forth above. Applicant further traverses the motivation to combine Wataya as unsupported. Specifically, the Patent Office opines that the motivation to combine the references is "to provide a new and improved air fuel ratio control system for internal combustion engines capable of maintaining exhaust gas from cylinders at a theoretical air fuel ratio." This asserted motivation lacks the requisite evidence and is improper. Since the motivation is improper, the combination is improper, and the rejection is not properly supported.

Applicant further traverses the rejection on the basis that the combination does not teach or suggest reporting the peak in the sensed oxygen level to an operator in a human readable format as recited in the claims. As explained above, Turin and Weber do not teach or suggest this element. Wataya does nothing to cure the deficiencies of the first two references. Thus, in combination, the three references do not teach or suggest the claim element. Since the combination does not teach or suggest the claim element, the combination does not establish obviousness.

Applicant requests reconsideration of the rejections in light of the amendments and remarks presented herein. The references of record do not teach or suggest reporting the peak in the sensed oxygen level to an operator in a human readable format as recited in the amended claims. Applicant earnestly solicits claim allowance at the Examiner's earliest convenience.

Respectfully submitted,

WITHROW & TERRANOVA, P.L.L.C.

By: 

Taylor M. Davenport
Registration No. 42,466
P.O. Box 1287
Cary, NC 27512
Telephone: (919) 654-4520

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